

# **ANT-THEFT SUSPENSION RACK ASSEMBLY**

## **BACKGROUND OF THE INVENTION**

### **1. Field of the Invention**

The present invention relates to a suspension rack assembly, and more particularly to a multifunctional anti-theft suspension rack assembly.

### **2. Description of the Related Art**

A conventional suspension rack can be used to package and hang an article, such as a hand tool or the like, on the wall or the display shelf for exhibition use. However, after the hand tool is removed from the suspension rack, the suspension rack is broken and useless, and has to be thrown away, thereby causing consumption of material. In addition, it is necessary to prepare a tool box to store the hand tool when not in use. Further, the conventional suspension rack does not have an anti-theft function, so that the hand tool is easily stolen.

## **SUMMARY OF THE INVENTION**

The primary objective of the present invention is to provide a suspension rack assembly having a package exhibition function.

Another objective of the present invention is to provide a suspension rack assembly having an anti-theft function.

A further objective of the present invention is to provide a suspension rack assembly that can be used to suspend a single tool or multiple sets of tools.

1           A further objective of the present invention is to provide a  
2 suspension rack assembly that can be carried on the user's waist.

3           A further objective of the present invention is to provide a  
4 suspension rack assembly, wherein the hand tool is fixed on the anti-theft lock  
5 and the support rack of the main body rigidly and stably, thereby providing an  
6 anti-theft function.

7           A further objective of the present invention is to provide a  
8 suspension rack assembly, wherein the anti-theft lock is integrally formed on  
9 the main body without needing an additional working process, thereby  
10 decreasing costs of fabrication.

11           A further objective of the present invention is to provide a  
12 suspension rack assembly, wherein the main body can co-operate with the  
13 anti-theft lock, the upper secondary body and the lower secondary body to  
14 provide different functions, thereby enhancing the versatility of the suspension  
15 rack assembly so as to satisfying the user's different requirements.

16           In accordance with the present invention, there is provided a  
17 suspension rack assembly, comprising:

18           a main body having a lower portion provided with a protruding  
19 support rack and an upper portion provided with a protruding press portion;  
20 and

21           an anti-theft lock integrally formed on the main body and located  
22 adjacent to the support rack of the main body;

1 the anti-theft lock including a seat portion, and two arms each  
2 extended outward from the seat portion and each having a distal end formed  
3 with a retaining portion extended toward the support rack of the main body.

4 Further benefits and advantages of the present invention will become  
5 apparent after a careful reading of the detailed description with appropriate  
6 reference to the accompanying drawings.

### 7 **BRIEF DESCRIPTION OF THE DRAWINGS**

8 Fig. 1 is an exploded perspective view of a suspension rack assembly  
9 in accordance with the preferred embodiment of the present invention;

10 Fig. 2 is a perspective assembly view of the suspension rack  
11 assembly in accordance with the preferred embodiment of the present  
12 invention;

13 Fig. 3 is a side plan operational view of the suspension rack assembly  
14 as shown in Fig. 1;

15 Fig. 3A is a partially cut-away front plan view of the suspension rack  
16 assembly as shown in Fig. 3;

17 Fig. 4 is a side plan operational view of the suspension rack assembly  
18 as shown in Fig. 1;

19 Fig. 5 is a perspective assembly view of the suspension rack  
20 assembly in accordance with another embodiment of the present invention;

21 Fig. 6 is a perspective assembly view of the suspension rack  
22 assembly in accordance with another embodiment of the present invention;

1           Fig. 7 is an exploded perspective view of the suspension rack  
2 assembly in accordance with the preferred embodiment of the present  
3 invention;

4           Fig. 8 is a perspective assembly view of the suspension rack  
5 assembly as shown in Fig. 7; and

6           Fig. 9 is a schematic operational view of the suspension rack  
7 assembly as shown in Fig. 8.

8                     **DETAILED DESCRIPTION OF THE INVENTION**

9           Referring to the drawings and initially to Figs. 1-4, a suspension rack  
10 assembly in accordance with the preferred embodiment of the present  
11 invention comprises a main body 10, an anti-theft lock 20, an upper secondary  
12 body 30, and a lower secondary body 40.

13           The main body 10 has a lower portion provided with a protruding  
14 support rack 11 and an upper portion provided with a protruding press portion  
15 13. The press portion 13 of the main body 10 has a bottom formed with a  
16 semi-circular guide portion 130. The main body 10 has a mediate portion  
17 formed with a receiving portion 12 for receiving an anti-theft label 120. The  
18 main body 10 has a top provided with a first fixing portion 14 and a bottom  
19 provided with a second fixing portion 15. The support rack 11 of the main body  
20 10 has a central portion formed with a positioning hole 111 having a top  
21 formed with an enlarged opening 110. In addition, the support rack 11 of the

1 main body 10 has a distal end formed with a passage 112 communicating with  
2 the positioning hole 111.

3 As shown in Figs. 3 and 3A, a hand tool 50, such as a screwdriver, is  
4 mounted on the main body 10. The hand tool 50 has a handle 51 retained by the  
5 support rack 11 of the main body 10. The handle 51 of the hand tool 50 has a  
6 top secured in the guide portion 130 of the press portion 13 of the main body  
7 10.

8 The anti-theft lock 20 is integrally formed on the main body 10 and  
9 located above the support rack 11 of the main body 10. The anti-theft lock 20  
10 includes a plate-shaped seat portion 21 having a periphery locally connected to  
11 the main body 10, and two arms 22 each extended outward from the seat  
12 portion 21. Each of the two arms 22 of the anti-theft lock 20 has a distal end  
13 formed with a triangular retaining portion 23 protruded outward and extended  
14 toward the support rack 11 of the main body 10 to retain the handle 51 of the  
15 hand tool 50 as shown in Figs. 3 and 3A.

16 The upper secondary body 30 is mounted on the main body 10 and  
17 has a lower portion mounted on the first fixing portion 14 of the main body 10  
18 and an upper portion formed with a slot-shaped hanging portion 31. The upper  
19 secondary body 30 is provided with a positioning portion 32 protruding  
20 outward therefrom. The positioning portion 32 of the upper secondary body 30  
21 has a first end formed with a retaining neck 321 (see Fig. 2) and a second end  
22 formed with an enlarged mushroom-shaped guide head 320 having a

1 dimension greater than that of the retaining neck 321. The upper secondary  
2 body 30 has a side provided with a locking tooth 33 (see Fig. 2).

3 The lower secondary body 40 is mounted on the main body 10 and  
4 has an upper portion mounted on the second fixing portion 15 of the main body  
5 10. The lower secondary body 40 is provided with a fixing portion 41  
6 protruding outward therefrom.

7 As shown in Figs. 3 and 3A, when the hand tool 50 is mounted on the  
8 main body 10, the cone-shaped bottom portion 510 of the handle 51 of the  
9 hand tool 50 is clamped between the retaining portions 23 of the anti-theft lock  
10 20 and the positioning hole 111 of the support rack 11 of the main body 10,  
11 while the top portion of the handle 51 of the hand tool 50 is secured in the  
12 guide portion 130 of the press portion 13 of the main body 10, so that the hand  
13 tool 50 is fixed on the anti-theft lock 20 and the support rack 11 of the main  
14 body 10 rigidly and stably, thereby providing an anti-theft function.

15 As shown in Fig. 4, after the consumer purchases the hand tool 50,  
16 the connection between the seat portion 21 of the anti-theft lock 20 and the  
17 main body 10 is broken to detach the seat portion 21 of the anti-theft lock 20  
18 from the main body 10, so that the hand tool 50 can be detached from the  
19 support rack 11 of the main body 10 easily and conveniently for use.

20 In addition, when not in use, the bottom portion 510 of the handle 51  
21 of the hand tool 50 is retained by the positioning hole 111 of the support rack  
22 11 of the main body 10, while the top portion of the handle 51 of the hand tool

1 50 is secured in the guide portion 130 of the press portion 13 of the main body  
2 10, so that the hand tool 50 is supported on the support rack 11 of the main  
3 body 10 rigidly and stably. At this time, the first fixing portion 14 or the second  
4 fixing portion 15 of the main body 10 can be fixed on the wall or other object  
5 by a screw or the like, thereby fixing the main body 10 and the hand tool 50.

6 As shown in Fig. 5, the suspension rack assembly further comprises a  
7 suspension rack 60 mounted on the main body 10 and includes at least one  
8 elastic locking members 61 provided with a locking portion 610 locked in the  
9 first fixing portion 14 or the second fixing portion 15 of the main body 10, so  
10 that first fixing portion 14 or the second fixing portion 15 of the main body 10  
11 is attached to the suspension rack 60. The suspension rack 60 is formed with  
12 two fixing holes 62, so that the suspension rack 60 can be fixed on the wall or  
13 other object by screws 65. The suspension rack 60 is formed with two hanging  
14 portions 63, so that the suspension rack 60 can be suspended on the wall or  
15 other object.

16 As shown in Fig. 6, in accordance with another embodiment of the  
17 present invention, the suspension rack 60A has a different configuration.

18 Referring to Figs. 7-9, the guide head 320 of the positioning portion  
19 32 of the upper secondary body 30 is extended through the receiving portion  
20 12 of the main body 10, and the retaining neck 321 of the positioning portion  
21 32 of the upper secondary body 30 is slidably mounted in the receiving portion

1 12 of the main body 10, so that the upper secondary body 30 can be rotated  
2 relative to the main body 10 about the positioning portion 32.

3 In addition, a waist belt 70 is extended between the upper secondary  
4 body 30 and the main body 10, and is locked by the locking tooth 33 of the  
5 upper secondary body 30, so that the main body 10 is fixed on the waist belt 70,  
6 thereby facilitating the user carrying the hand tool 50 and the main body 10 on  
7 the waist belt 70.

8 Further, the fixing portion 41 of the lower secondary body 40 is fixed  
9 on the wall 80 by a screw member 42, and the bottom of the upper secondary  
10 body 30 is inserted into the gap between the lower secondary body 40 and the  
11 wall 80, so that the main body 10 and the upper secondary body 30 can be  
12 removed from the waist belt 70 and can be hung on the lower secondary body  
13 40.

14 Accordingly, the bottom portion 510 of the handle 51 of the hand tool  
15 50 is clamped between the retaining portions 23 of the anti-theft lock 20 and  
16 the positioning hole 111 of the support rack 11 of the main body 10, while the  
17 top portion of the handle 51 of the hand tool 50 is secured in the guide portion  
18 130 of the press portion 13 of the main body 10, so that the hand tool 50 is  
19 fixed on the anti-theft lock 20 and the support rack 11 of the main body 10  
20 rigidly and stably, thereby providing an anti-theft function.



1           In addition, the anti-theft lock 20 is integrally formed on the main  
2 body 10 without needing an additional working process, thereby decreasing  
3 costs of fabrication.

4           Further, the main body 10 can co-operate with the anti-theft lock 20,  
5 the upper secondary body 30 and the lower secondary body 40 to provide  
6 different functions, thereby enhancing the versatility of the suspension rack  
7 assembly so as to satisfying the user's different requirements.

8           Although the invention has been explained in relation to its preferred  
9 embodiment(s) as mentioned above, it is to be understood that many other  
10 possible modifications and variations can be made without departing from the  
11 scope of the present invention. It is, therefore, contemplated that the appended  
12 claim or claims will cover such modifications and variations that fall within the  
13 true scope of the invention.

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